









Demographic characteristics	Frequency	Percentage (%)
Sex:		
Male	23	74.2
Female	8	25.8
Total	31	100.0
Age (Years)		
18-25	18	58.1
Above 25	13	41.9
Total		100.0
Place of Resident		
Rural	19	61.3
Urban	12	38.7
Total	31	100.0

Source: Field data, 2020.

#### 4.2 Academic benefits students derived from participating in school garden

Table 2 below shows all the benefits students derive from working in the school garden. A majority (29%) of the 31 respondents established that school gardens provided the opportunity to understand concepts that were taught in class. According to 25.8 percent of the students, the gardening program makes learning very interesting and lively.

From personal observation, students really enjoyed gardening activities as they offered them the opportunity to learn new things and to feel first-hand what had been taught theoretically in class. According to Williams (2018), the benefits of experiential learning allow for a better understanding of concepts because the hands-on approach provides meaningful and tangible experiences that last a lifetime. Real-life garden experiences contribute greatly to students' understanding and retention of new science knowledge, which in the long term increases students' science achievement scores (Williams, 2018; Eugenio-Gozalbo, 2020).

The results of the improvement in academic achievement by students are expected because of the benefits from increased retention, improved attitudes about agriculture, and engagement in the learning process (Acker and Gasperini, 2009). In addition, when gardens and nutritional information are combined together as a curriculum, student knowledge is greater than that of students who solely receive nutrition lessons (Orenes et al. 2022).

**Table 2: Academic benefits students of agriculture from PKCE, Ghana, derived from working in school garden**

Academic benefits	Frequency	Percentage (%)
Concepts taught in class easily understood	9	29.0
Learning become very interesting and lively	8	25.8
Healthy social habit	3	9.7
Tool for learning other subjects	4	12.9
Build classroom relationships, improve teamwork	2	6.5
Improvement in science grades	5	16.1

Source:

Field data, 2020.

#### 4.3 Distribution of None academic benefits of gardening to students

Apart from the academic benefits, the school garden provides quite a number of non-academic benefits to students. The results in Table 2 showed the non-academic benefits students derived from the school garden program. 29% of the respondents (the highest percentage) stated that the program promotes good nutrition and exercise. Also, 19.4% of the students maintained that the program taught them patience and responsibility, while 3.2% (at least) stated it had instilled in them positive work ethics.

Garden projects draw on skills and interests not necessarily associated with high achievement in the regular classroom. Physical strength, visual-spatial skills, or experience in building are some of the important skills that can be acquired through outdoor programs such as gardening. The best place to exercise and acquire useful skills like patience, perseverance, commitment, and all the positive work ethics is the garden (Kallhoff, 2017)

**Table 3: Percentage distribution of none-academic benefits students of agriculture from PKCE, Ghana, derived from working in school garden.**

None academic benefits	Frequency	Percentage (%)
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Improve self-esteem and positive attitudes toward school	4	12.9
Increase group cohesion	4	12.9
Improve environmental attitudes	2	6.5
Promote good nutrition and exercise	9	29.0
Teach patience and responsibility	6	19.4
Instill a positive work ethic	1	3.2
Perseverance and commitment	5	16.1
<b>Total</b>	<b>31</b>	<b>100</b>

Source: Field data, 2020.

#### 4.4 Specific gardening skills acquired by students from the school garden

Figure 1 shows the specific skills student teachers of agriculture have acquired from actively participating in the school garden activities. From the results, 29% (the highest) of the participants said they have acquired skills in seed nursing and transplanting; 24% in recording and record keeping; and 14% in garden planning and weed control, respectively. These skills are practical in nature and can best be acquired by students through practical outdoor activities like gardening. Introducing a school garden can have many benefits for students. Students spend more time outdoors after a lot of time in the classroom, through which they will also become equipped with precious real-life skills (Hirschi, 2017; Rector, 2021). After spending their best years in a school with a gardening program, it's likely that almost all students will continue to nurture this love of nature throughout their life.

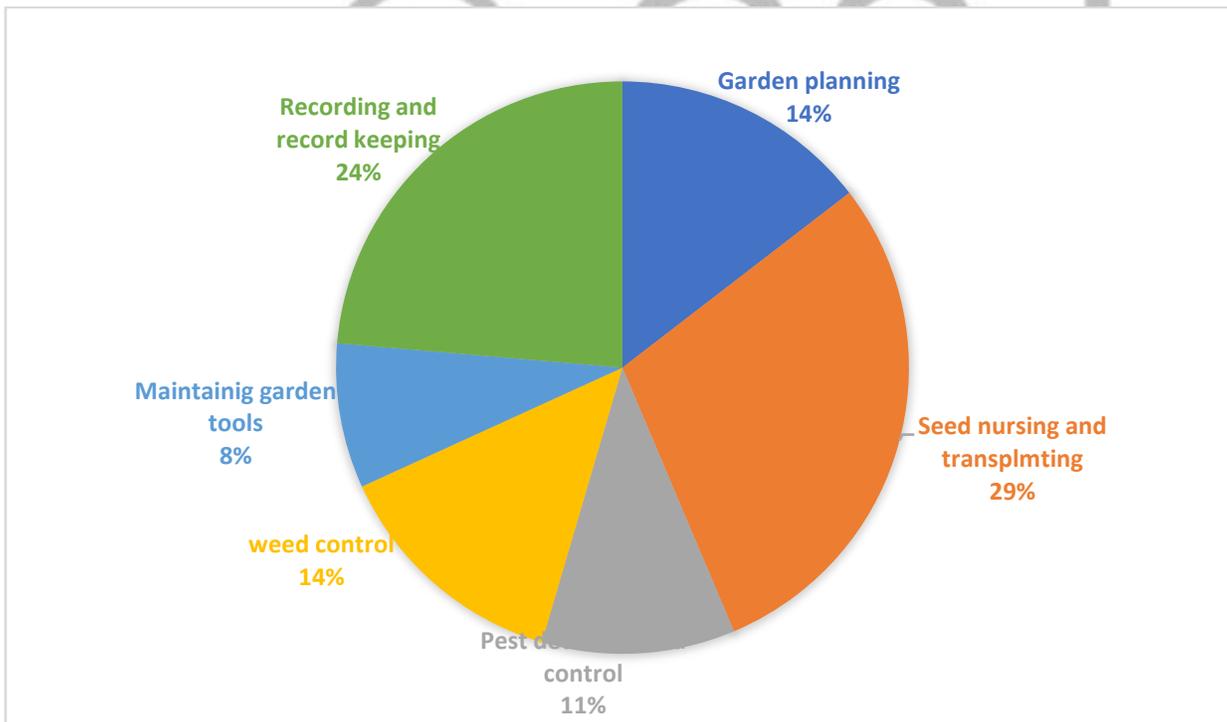


Figure 1: Specific gardening skills acquired by students of agriculture from PKCE, Ghana, for working in a school garden. Source: Field data, 2020.

#### 4.5 Students' grading of the school garden program

Figure 2 shows students' evaluations at the end of the school garden activities. Out of the 31 students involved in the program, 84% saw the program as "very useful." Also, 15% stated it was "useful", whilst 2% saw it as "not useful", with 1% of the respondents "undecided." Apart from the garden being used as a learning tool, it is also a very important place to break the usual classroom boredom. It is a place to have fun and freely play with nature. The students' evaluation of the school garden as very useful was not surprising as the researcher observed the excitement on their faces when the harvested vegetables (carrots, cabbages, and lettuce)

were shared among them. This satisfaction could be borne out by the fact that their efforts have paid off. It is therefore important to note that through gardening, students can learn not only what they should eat but also obtain a greater appreciation for how food is grown (Malberg, 2018).

Additionally, 89% of the students interviewed were willing to take up farming as a part-time job, while 11% were willing to take up farming as a full-time job. The willingness of student teachers to take up farming as a productive job after graduation, either part-time or full-time, was a positive development. The school garden program has a positive effect on their perception and appreciation of agriculture (Opitz, 2017). School gardens are a tool where pupils can attain life skills that are relevant to the everyday challenges of nutrition, food security, and poverty (Blair, 2009; Oostindjer et al., 2017).

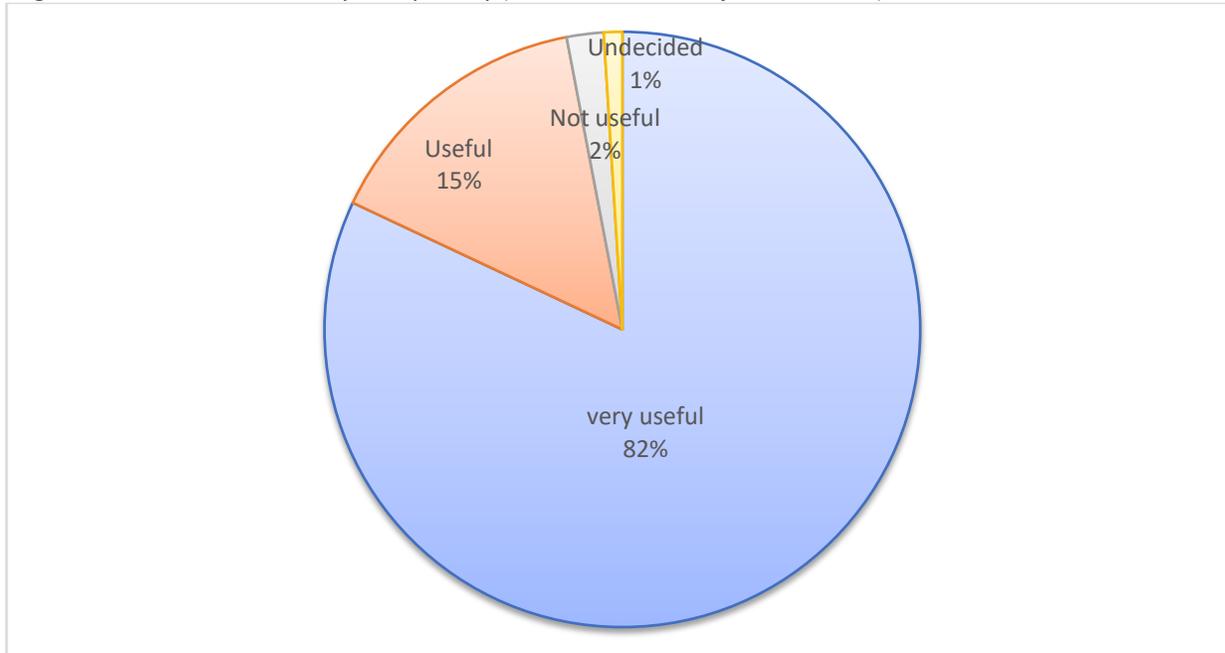


Figure 2: The grading of school gardening programs by students of agriculture from PKCE  
Source: Field data, 2020.

### 5.0 Conclusion and recommendation.

Agricultural students at Peki College of Education who participated in the school garden project for the 2019/2020 academic year were generally young, with an average age of about 23 years. All students have indicated that they have benefited greatly from the school garden activities both academically and non-academically. 84% of the students saw the program as "very useful" in enhancing their knowledge not only in agriculture but in other subject areas as well. In addition, students learned many useful and life-changing gardening skills such as garden planning, seed nursing and transplanting, pest and disease detection and control, weed control, garden tool maintenance, recording, and record keeping. Notwithstanding the negative comments and perceptions students interviewed hold about the prospects of farming prior to the garden program, 89% of the students re-interviewed were willing to take up farming as a part-time job, while 11% were willing to take up farming as a full-time profession in future.

School gardening is a very useful tool in teaching and learning, not only in agriculture but in many other disciplines as well. The use of gardens as a tool for learning has evolved through the ages, changing with the educational policies, philosophies, and values of recent times. It is important to see gardening in schools as a means of educating children through an integrated approach and recognizing that the unique potential of every individual child can be realized not only through core academics but also through other stable establishments such as school gardens. In view of this, teachers should be educated and encouraged about the many ways to incorporate a garden into their curriculum.

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